CALIFORNIA HIGH-SPEED TRAIN

Program Environmental Impact Report/Environmental Impact Statement

Bakersfield to Los Angeles

AESTHETICS & VISUAL QUALITY TECHNICAL EVALUATION

January 2004

Prepared for:

California High-Speed Rail Authority

U.S. Department of Transportation
Federal Railroad Administration

CALIFORNIA HIGH SPEED RAIL AUTHORITY

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CALIFORNIA HIGH-SPEED TRAIN PROGRAM EIR/EIS

Bakersfield to Los Angeles Aesthetics & Visual Quality Technical Evaluation

Prepared by:

P&D Consultants, Inc.

999 Town & Country Road, 4th Floor
Orange, CA 92868

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ACRONYMS

AUTHORITY	CALIFORNIA HIGH-SPEED RAIL AUTHORITY
CEQA	CALIFORNIA ENVIRONMENTAL QUALITY ACT
COG	COUNCIL OF GOVERNMENTS
EIR	ENVIRONMENTAL IMPACT REPORT
EIS	ENVIRONMENTAL IMPACT STATEMENT
EPA	ENVIRONMENTAL PROTECTION AGENCY
FAA	FEDERAL AVIATION ADMINISTRATION
FHWA	FEDERAL HIGHWAY ADMINISTRATION
FRA	FEDERAL RAILROAD ADMINISTRATION
FTA	FEDERAL TRANSIT ADMINISTRATION
MTA	METROPOLITAN TRANSPORTATION AUTHORITY
RTP	REGIONAL TRANSPORTATION PLAN

1.0 INTRODUCTION

The California High-Speed Rail Authority (Authority) was created by the Legislature in 1996 to develop a plan for the construction, operation, and financing of a statewide, intercity high-speed passenger train system.[1] After completing a number of initial studies over the past six years to assess the feasibility of a high-speed train system in California and to evaluate the potential ridership for a variety of alternative corridors and station areas, the Authority recommended the evaluation of a proposed high-speed train system as the logical next step in the development of California's transportation infrastructure. The Authority does not have responsibility for other intercity transportation systems or facilities, such as expanded highways, or improvements to airports or passenger rail or transit used for intercity trips.

The Authority adopted a *Final Business Plan* in June 2000, which reviewed the economic feasibility of a 1,127-kilometer-long (700-mile-long) high-speed train system. This system would be capable of speeds in excess of 321.8 kilometers per hour (200 miles per hour [mph]) on a dedicated, fully grade-separated track with state-of-the-art safety, signaling, and automated train control systems. The system described would connect and serve the major metropolitan areas of California, extending from Sacramento and the San Francisco Bay Area, through the Central Valley, to Los Angeles and San Diego. The high-speed train system is projected to carry a minimum of 42 million passengers annually (32 million intercity trips and 10 million commuter trips) by the year 2020.

Following the adoption of the Business Plan, the appropriate next step for the Authority to take in the pursuit of a high-speed train system is to satisfy the environmental review process required by federal and state laws which will in turn enable public agencies to select and approve a high speed rail system, define mitigation strategies, obtain necessary approvals, and obtain financial assistance necessary to implement a high speed rail system. For example, the Federal Railroad Administration (FRA) may be requested by the Authority to issue a *Rule of Particular Applicability*, which establishes safety standards for the high-speed train system for speeds over 200 mph, and for the potential shared use of rail corridors.

The Authority is both the project sponsor and the lead agency for purposes of the California Environmental Quality Act (CEQA) requirements. The Authority has determined that a Program Environmental Impact Report (EIR) is the appropriate CEQA document for the project at this conceptual stage of planning and decision-making, which would include selecting a preferred corridor and station locations for future right-of-way preservation and identifying potential phasing options. No permits are being sought for this phase of environmental review. Later stages of project development would include project-specific detailed environmental documents to assess the impacts of the alternative alignments and stations in those segments of the system that are ready for implementation.

The decisions of federal agencies, particularly the Federal Railroad Administration (FRA) related to high-speed train systems, would constitute major federal actions regarding environmental review under the National Environmental Policy Act (NEPA). NEPA requires federal agencies to prepare an Environmental Impact Statement (EIS) if the proposed action has the potential to cause significant environmental impacts. The proposed action in California warrants the preparation of a Tier 1 Program-level EIS under NEPA, due to the nature and scope of the comprehensive high-speed train system proposed by the Authority, the need to narrow the range of alternatives, and the need to protect/preserve right-of-way in the future. FRA is the federal lead agency for the preparation of the Program EIS, and the Federal Highway Administration (FHWA), the U.S. Environmental Protection Agency (EPA), the U.S. Corps of Engineers (USACE), the Federal Aviation Administration (FAA), the U.S. Fish and Wildlife Service (USFWS), and the Federal Transit Administration (FTA) are cooperating federal agencies for the EIS.

[1] Chapter 796 of the Statutes of 1996; SB 1420, Kopp and Costa

A combined Program EIR/EIS is to be prepared under the supervision and direction of the FRA and the Authority in conjunction with the federal cooperating agencies. It is intended that other federal, state, regional, and local agencies will use the Program EIR/EIS in reviewing the proposed program and developing feasible and practicable programmatic mitigation strategies and analysis expectations for the Tier 2 detailed environmental review process which would be expected to follow any approval of a high speed train system.

The statewide high-speed train system has been divided into five regions for study: Bay Area-Merced, Sacramento-Bakersfield, Bakersfield-Los Angeles, Los Angeles-San Diego via the Inland Empire, and Los Angeles-Orange County-San Diego. This Visual Resource Technical Evaluation for the (name of region) is one of five such reports being prepared for each of the regions on the topic, and it is one of fifteen technical reports for this region. This report will be summarized in the Program EIR/EIS and it will be part of the administrative record supporting the environmental review of alternatives.

1.1 ALTERNATIVES

1.1.1 No-Project Alternative

The No-Project Alternative serves as the baseline for the comparison of Modal and High-Speed Train alternatives. The No-Project Alternative, shown on Figure 1.1-1, represents the state's transportation system (highway, air, and conventional rail) as it existed in 1999-2000 and as it would be after implementation of programs or projects currently programmed for implementation and projects that are expected to be funded by 2020. The No-Project Alternative addresses the geographic area serving the same intercity travel market as the proposed high-speed train (generally from Sacramento and the San Francisco Bay Area, through the Central Valley, to Los Angeles and San Diego). The No-Project Alternative satisfies the statutory requirements under CEQA and NEPA for an alternative that does not include any new action or project beyond what is already committed.

The No-Project Alternative defines the existing and future statewide intercity transportation system based on programmed and funded (already in funded programs/financially constrained plans) improvements to the intercity transportation system through 2020, according to the following sources of information:

State Transportation Improvement Program (STIP)

Regional Transportation Plans (RTPs) for all modes of travel

Airport plans

Intercity passenger rail plans (California Rail Plan 2001-2010, Amtrak Five- and Twenty-year Plans)

As with all of the alternatives, the No-Project Alternative will be assessed against the purpose and need topics/objectives for congestion, safety, air pollution, reliability, and travel times.

In the Bakersfield to Los Angeles region the only programmed improvement is a widening of SR-99 in the Antelope Valley which will be constructed in the existing right-of-way.

Figure 1.1-1
No-Project Alternative – California Transportation System

1.1.2 Modal Alternative

There are currently only three main options for intercity travel between the major urban areas of San Diego, Los Angeles, the Central Valley, San Jose, Oakland/San Francisco, and Sacramento: vehicles on the interstate highway system and state highways, commercial airlines serving airports between San Diego and Sacramento and the Bay Area, and conventional passenger trains (Amtrak) on freight and/or commuter rail tracks. The Modal/System Alternative consists of expansion of highways, airports, and intercity and commuter rail systems serving the markets identified for the High-Speed Train Alternative. The Modal Alternative-Highway Component is shown of Figure 1.1-2 and the Modal Alternative-Airport Component is shown on Figure 1.1-3. The Modal Alternative uses the same inter-city travel demand (not capacity) assumed under the high-end sensitivity analysis completed for the high-speed train ridership in 2020. This same travel demand is assigned to the highways and airports and passenger rail described under the No-Project Alternative, and the additional improvements or expansion of facilities is assumed to meet the demand, regardless of funding potential and without high-speed train service as part of the system.

The Modal Alternative in the Bakersfield to Los Angeles region includes the following expansions:

- I-5 between SR 99 and SR 14 will be widened by two lanes.
- I-5 between SR 14 and I-405 will be expanded by four lanes that will be double-decked.
- I-5 between I-405 and Burbank will be widened by four lanes.
- SR 14 from Palmdale to I-5 will be widened by two lanes.
- The Burbank Airport will be expanded by 9.9 million annual passengers (MAP). There will be 19 new gates, one new runway and one new access.

1.1.3 High-Speed Train Alternative

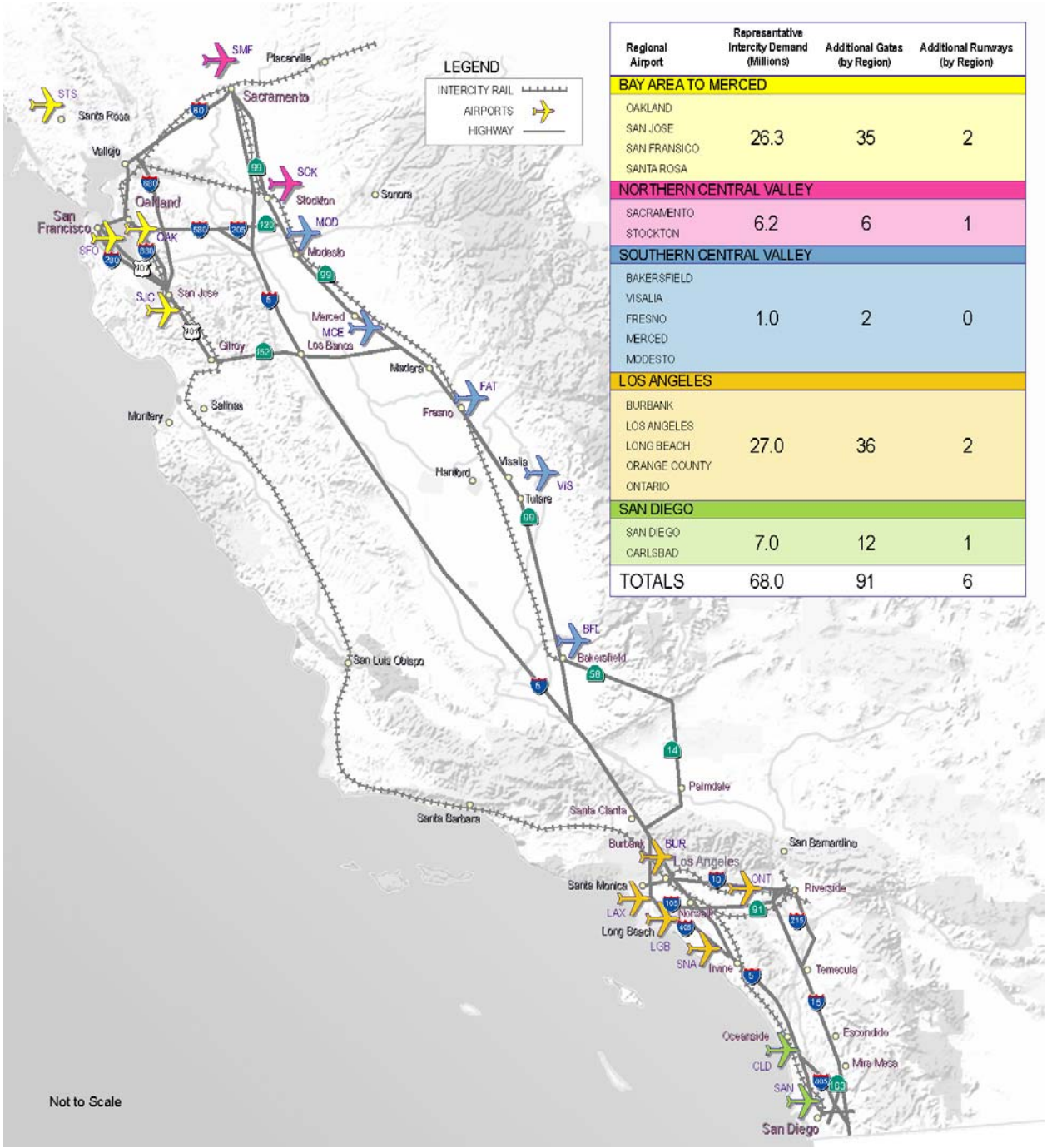
The Authority has defined a statewide high-speed train system capable of speeds in excess of 200 miles per hour (mph) (320 kilometers per hour (km/h)) on dedicated, fully grade-separated tracks, with state-of-the-art safety, signaling, and automated train control systems. State of the art high-speed steel-wheel-on-steel-rail technology is being considered for the system that would serve the major metropolitan centers of California, extending from Sacramento and the San Francisco Bay Area, through the Central Valley, to Los Angeles and San Diego. The HST Alternative is shown on Figure 1.1-4.

The High-Speed Train (HST) Alternative includes several corridor and station options. A steel-wheel on steel-rail, electrified train, primarily on exclusive right-of-way with small portions of the route on shared track with other rail is planned. Conventional “non-electric” improvements are also being considered along the existing LOSSAN rail corridor from Los Angeles to San Diego. The train track would be either at-grade, in an open trench or tunnel, or on an elevated guideway, depending on terrain and physical constraints.

For purposes of comparative analysis the HST corridors will be described from station-to-station within each region, except where a by-pass option is considered when the point of departure from the corridor will define the end of the corridor segment.

Figure 1.1-2
Modal Alternative – Highway Component

Figure 1.1-3
Modal Alternative – Aviation Component



Regional Airport	Representative Intercity Demand (Millions)	Additional Gates (by Region)	Additional Runways (by Region)
BAY AREA TO MERCED			
OAKLAND SAN JOSE SAN FRANSICO SANTA ROSA	26.3	35	2
NORTHERN CENTRAL VALLEY			
SACRAMENTO STOCKTON	6.2	6	1
SOUTHERN CENTRAL VALLEY			
BAKERSFIELD VISALIA FRESNO MERCED MODESTO	1.0	2	0
LOS ANGELES			
BURBANK LOS ANGELES LONG BEACH ORANGE COUNTY ONTARIO	27.0	36	2
SAN DIEGO			
SAN DIEGO CARLSBAD	7.0	12	1
TOTALS	68.0	91	6

Figure 1.1-4
High-Speed Train Alternative – Corridors and Stations for Continued Investigation

2.0 BASELINE/AFFECTED ENVIRONMENT

2.1 STUDY AREA (0.25 MILE AND UP TO 1.0 MILE FOR SCENIC VIEWING PINTS) DEFINED

The Study Area for visual resources is defined as 0.25 mile (mi) (0.4 kilometer (km)) from the centerline of corridors and around stations, except in those instances where there are scenic viewing points or overlooks within one mile of the project. In these cases, these scenic viewing points have been included in the study area. The distance range of up to 0.25 mi (0.4 km) from corridors and stations and up to one mile for scenic viewing points is considered the extent of area where a change in landscape features would be most noticeable to viewers, and new introduced features could begin to dominate the visual character of the landscape.

2.2 EXISTING CONDITIONS AND FUTURE BASELINE (GENERAL DESCRIPTION OF REGIONAL LANDSCAPE FEATURES)

This section includes a description of representative scenic resources and scenic viewing points in the study area, with photographs and figures depicting the viewpoint locations. Several other types of landscapes are also described in text. Theses landscapes that occur along the corridors and HST station sites are not considered to be scenic resources.

2.2.1 Description of Representative Scenic Resources and Scenic Viewing Points

Nine viewpoints have been selected in this region that are associated with representative scenic resources and scenic viewing points along the alternative corridors and around HST station sites. Figures depicting the location of the selected viewpoints and the direction of view are provided. Photographs taken from each of the viewpoints are shown on accompanying figures. The landscape in each of the photographs is described briefly below, along with the reason that the landscape in the view is considered a scenic visual resource. The landscape in each photograph is described in terms of distinguishable (dominant) features that characterize the color, texture, line and form in the fore-ground, middle-ground, and back-ground of the view.

Viewpoint No. 1 in the Pyramid Lake Recreation Area

Pyramid Lake Recreation Area is in the Angeles National Forest north of the Santa Clarita Valley. Pyramid Lake, owned and operated by the California Department of Water Resources (DWR), is a reservoir of the State Water Project that also provides boating, fishing and swimming opportunities for visitors. These recreation activities on the Lake, as well as overnight camping and picnicking are administered through the United States Forest Service (USFS). The Vista Del Lago Visitors Center operated by DWR provides interactive exhibits on California's water and has balconies with telescopes for viewing the Lake. The Lake and surrounding recreation area are scenic resources because of the recreation opportunities and scenic views afforded to the public. The balcony of the Visitors Center with views of the Lake is also considered a scenic viewing point.

Viewpoint No. 1 is from east of the Vista Del Lago Visitors Center looking south across the Lake to the mountains that form the southwestern edge of the lake. The viewpoint location is shown on Figure 2.2-1 and the photograph of the view is shown on Figure 2.2-2. The distance from the viewpoint to the most distant edge of the Lake is approximately 1.2 mi (1.9 km). Part of the Vista Del Lago Visitors Center building, with whitish walls and red roof, is in the fore-ground on the right side of photo, along with a guard rail adjacent to the parking lot which is outside of the right edge of

Figure 2.2-1
Locations of Viewpoints 1 and 2

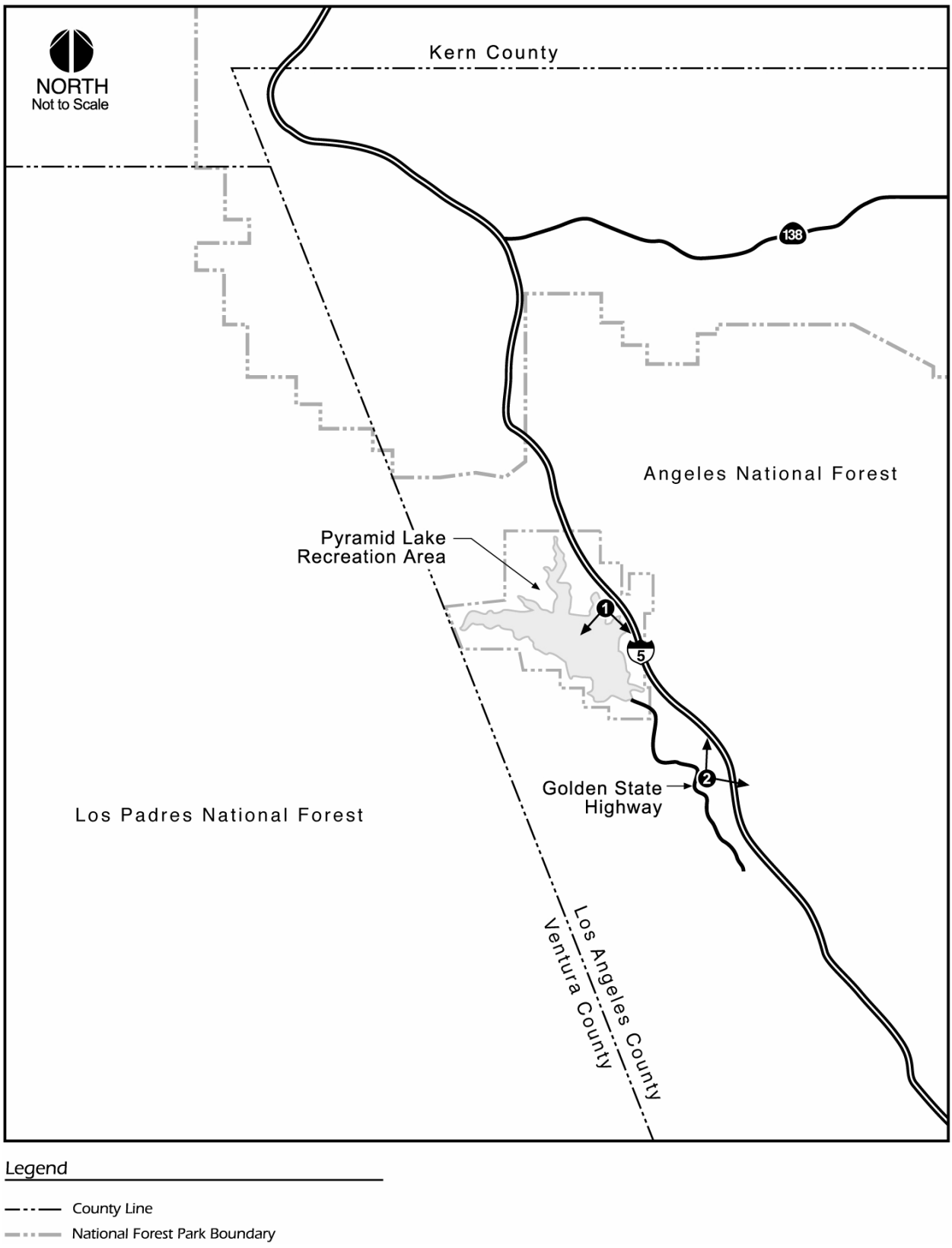


Figure 2.2-2
Viewpoint Photos 1 & 2

View No. 1. In the Pyramid Lake Recreation Area looking South.

View No. 2. From Golden State Highway in the Angeles National Forest looking Northeast.

the view. These smooth textured, man-made features with linear edges and geometric form contrast with the rounded form and coarser texture of the gray-green shrubby vegetation in the fore-ground on the hillside to the left of the Visitors Center. The blue Lake with its smooth texture, and irregular-shaped curvilinear edge extends from the fore-ground to the back-ground of the view. On the left of the view in the middle-ground, I-5 is visible as a narrow white line. Other features in the middle-ground include the green, shrub–covered island and hills on the left that extend to the edge of the lake. The texture of the vegetation cover on these curvilinear features appears moderately smooth compared to the vegetation in the fore-ground because the hills and island are farther away from the viewer. A picnic area is at the bottom of the hill at the Lake edge on the left of the view. In the back-ground, mountain ridges frame the view at the edge of the lake. The silhouette of the steep-sloped mountain ridges is curvilinear. The texture is smooth and the green color has a grayer cast than the vegetation in the fore-ground and middle-ground because of the effect of the atmosphere on colors viewed at greater distances.

Viewpoint No. 2 from Golden State Highway in the Angeles National Forest

Viewpoint 2 is from a point on Golden State Highway in the Angeles National Forest south of Pyramid Lake looking northeast. This road leads to camping areas within the Forest. The viewpoint location is shown on Figure 2.2-1 and the photograph of the view is shown on Figure 2.2-2. The distance from the viewpoint to the hills that form the backdrop of the view is approximately 1.3 mi (2.1 km).

The National Forest is considered a visually scenic resource because of the camping and other recreation opportunities provided and the largely undeveloped views afforded to visitors. The landscape from this viewpoint is typical of similar mountain landscape views from the Angeles National Forest near I-5. The fore-ground and middle-ground in the view include green hills covered with shrubs and patches of grassland. The patchiness of the vegetative cover gives the hills a medium coarse texture. The silhouette of the hill has a curvilinear line. Green hills that have a smoother texture because they are farther away from the viewer, form the back-ground of the view. Below the ridge of these hills, I-5 is visible in the middle-ground as a straight diagonal line just above the fill slopes that are a brighter green and smoother texture than the surrounding landscape. Vehicles are visible on I-5 and high voltage electrical towers are visible on the hills in the back-ground.

Viewpoint No. 3 from Santa Clarita Woodlands Park

Viewpoint 3 is from the edge of a parking lot near a trail head in Towsley Canyon in the Santa Clarita Woodlands Park looking northwest. The viewpoint location is shown on Figure 2.2-3 and the photograph of the view is shown on Figure 2.2-4. This Park, which is part of the Santa Monica Mountains Conservancy, provides picnic facilities and trails for hiking, mountain biking and equestrian uses. This Park is considered a scenic resource because the Park is available to recreation users to enjoy a predominantly undeveloped setting that includes a variety of native plants and animals.

Cars, a trash container and part of a parking lot are in the fore-ground on the right side of the photograph. The green, smooth-textured grassland in the fore-ground to the left of the parking lot transitions to predominantly taller grasses that are beige-colored in the winter when this photograph was taken, Coarser appearing shrubs are in the left of the view. A band of coarse-textured deciduous riparian vegetation is in the middle-ground beyond the smooth-texture paved access road. Utility poles at the edge of the road add straight, vertical lines to the middle-ground. The middle-ground also includes the green shrub–covered hill behind the utility pole on the right of the view. This hill has a medium-coarse appearance because of the patches of shrubs and grass. Rounded hills, covered with a mixture of shrubs and grasses of varying tones of green, are in the back-ground of the view. These background hills have a slightly smoother texture than the hill in the fore-ground

Figure 2.2-3
Location of Viewpoint 3

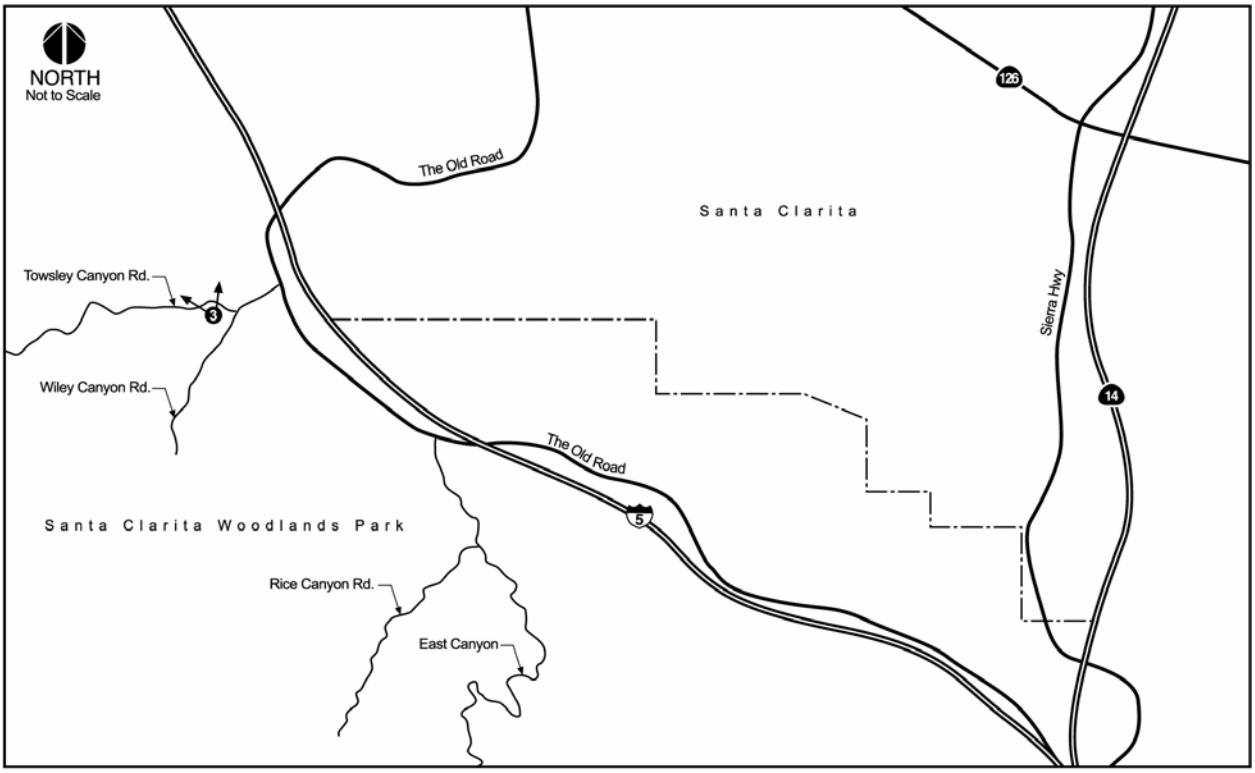


Figure 2.2-4
Viewpoint Photo 3

View No. 3. From Santa Clarita Woodlands Park looking Northwest.

closer to the viewer. The distance from the viewpoint to the farthest location in the view is approximately 614 feet (ft) (187 meters (m)).

Viewpoint No. 4 from the Tehachapi Loop Marker

Viewpoint number 4 is from the Tehachapi Loop marker south of State Route (SR) 58 east of the town of Keene. The direction of the view is northeast. The viewpoint location is shown on Figure 2.2-5 and the photograph of the view is shown on Figure 2.2-6. This viewpoint is considered scenic viewing point because the Tehachapi Pass Railroad Line, of which this loop is a part, is a national Historic Civil Engineering Landmark. This rail line, constructed between 1874 and 1876, averages 2.2% in gradient in its 28 miles of length. The line, essentially unchanged, is in constant use today 126 years after its completion.

The fore-ground of the view includes trees and part of the rail line that makes a 360 degree loop around the conical-shaped green hill with the white cross on the summit to the right of center in the view. The loop disappears from view behind this hill. The texture of the hill within the loop is smooth because the predominant vegetation cover is grass which is dotted with widely spaced trees. The middle-ground behind the rail loop is comprised of taller green hills and ridges covered with a mixture of grass and trees. These hills appear more coarse in texture than the hill in the fore-ground because trees are a more dominant component of the vegetation than grass. SR 58 and vehicles on it are visible along a thin line near the base of these peaks in the right of the view. Ridges in the back-ground are smooth in texture and appear blue compared to the green hills closer to the viewer. The distance from the viewpoint to the most distant ridges is approximately 8 mi (12.9 km). The distance from the viewpoint to the rail line is approximately 0.16 mi (0.26 km).

Viewpoint No. 5 from Sierra Highway

Viewpoint No. 5 is from Sierra Highway in the south part of the City of Palmdale looking northwest. The viewpoint location is shown on Figure 2.2-7 and the photograph of the view is shown on Figure 2.2-8a. This area is considered a scenic resource because Sierra Highway from Avenue S south to the City of Palmdale boundary is designated in the City of Palmdale General Plan as a scenic highway. This view is of a relatively undeveloped area of the Antelope Valley. The major man-made elements are paved Sierra Highway with dirt shoulder and the utility poles and wires that line the highway to the west. These elements of the view extend from the fore-ground to the back-ground. The other dominant feature in the fore-ground is the cover of light colored low shrubs found throughout the undeveloped areas of the valley floor. This cover is moderately coarse compared to the paved road and dirt shoulder. In the middle-ground beyond the area of light-colored shrubs is a band of taller reddish shrubs that line a pond called Una Lake. Water is not visible from this viewpoint but can be seen from Sierra Highway adjacent to the pond. Aquatic birds that frequent the pond can also be seen from this closer view point. The Lake Palmdale dam is visible on the far left of the view just to the right of the trees at the left edge of the photo. From this viewpoint the dam appears as a low straight–edged berm. On the right side of the view, the middle-ground also includes a band of evergreen trees and behind them a lighter green linear berm. The dominant feature in the back-ground is the Tehachapi Mountain Range that has a blue cast and curvilinear silhouette. The distance between the viewpoint and the mountain range in the back-ground is approximately 24 mi (38.6 km).

Viewpoint No. 6 from Soledad Canyon Road

Viewpoint No. 6 is from Soledad Canyon Road southwest of the City of Palmdale looking south across the Santa Clarita River floodplain. The viewpoint location is shown on Figure 2.2-7 and the photograph of the view is shown on Figure 2.2-8a. This part of the Santa Clarita River floodplain is